**Executive Summary**

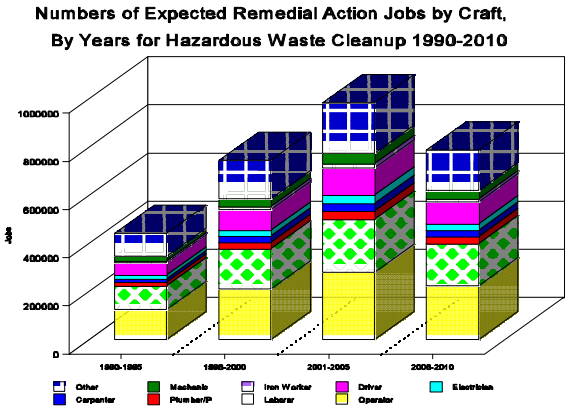
# LABOR MARKET STUDY
## of Hazardous Waste Workers
## and Associated Emergency Responders

**September 1996**

*With tens of thousands of hazardous waste sites to be cleaned up within the next few decades, careful consideration needs to be given to the actual scope of work to be done by cleanup workers. This study analyzes the amount of work, skills needed, and payroll required to get the job done. It is a tool for those who train workers in job skills and in safe handling of hazardous materials, as well as those who plan and regulate work site cleanup.*

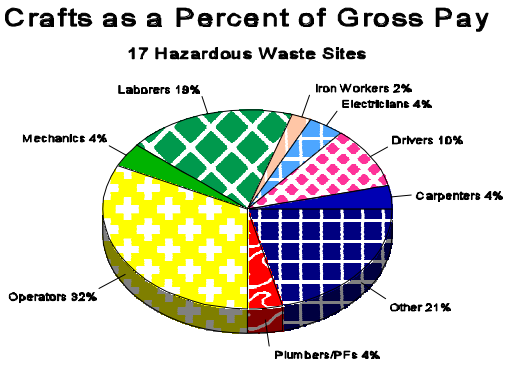
The nation's commitment to clean up hazardous waste sites will require 5.5 billion hours of work over 25 years, or approximately 3.5 million job years -- with the number of actual employment episodes closer to 7 or 8 million, due to the part-time nature of many construction-related jobs.

Between 1990 and 2000 alone, demand for remedial action workers is expected to grow by 60 percent, or almost 300,000 jobs from the 1990-1995 five year period through the five year period 1995-2000. Demand for jobs continues to grow by nearly another 300,000 employment episodes in the 2000-2005 time interval.




More employment episodes, perhaps three times as many, will occur for hazardous materials work as there are estimated, because of peak demands for workers throughout a remediation process. Such a high level of demand and growth requires planning so that a sufficient number of workers are trained not only in specific crafts, but also in hazardous material operations.

Equipment operators, laborers, truck drivers, carpenters, mechanics, electricians, plumbers, iron workers, and others will earn more than $758 billion dollars and provide a safer environment for the nation. Equipment operators, laborers, and truck drivers make up approximately 60 percent of on-site construction payroll. Carpenters, mechanics, electricians, plumbers/pipe fitters, and iron workers comprise an additional 20 percent of that payroll. Other crafts include asbestos workers, boilermakers, chemical workers, painters, roofers, and sheet metal workers.




Prepared for the National Institute of Environmental Health Sciences & the U.S. Environmental Protection Agency
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Many more individuals perform on-going operations and maintenance activities, sometimes for decades beyond the time of actual remediation.

Hundreds of thousands of emergency responders will aid in the process and help save lives and properties when spills, leaks and explosions at hazardous waste sites threaten the lives of both workers and nearby community residents.

Those who work at the sites must be trained in how to handle hazardous materials safely, protecting both themselves and those living near sites from safety and health risks. Most site workers are also residents of neighboring communities -- with 50-80 percent of workers at most sites living within 25 miles of the site at which they worked.

How many people work at what tasks in the future is dependent on the budget allocated to cleanup as well as the intensity of cleanup mandated and new technologies that are introduced. More than 1200 sites are identified on the National Priority List and tens of thousands more will require the attention of hazardous waste workers across the country.

This Labor Market Study of Hazardous Waste Workers and Associated Emergency Responders was funded through a cooperative agreement between the U.S. Environmental Protection Agency and the National Institute of Environmental Health Sciences, in order to better understand the number of workers and the skills they need to accomplish such an enormous multi-hundred billion dollar task.

The primary data for the study come from certified payrolls of actual cleanup sites. This extremely detailed approach -- of collecting wages earned, hours worked, and residence of worker from over 80,000 records -- was chosen so that projections would be based in actual on-site experience. Additional data bases were built by the research team at Ruth Ruttenberg & Associates, Inc., including one of state emergency response data detailing hazardous materials incidents in Arizona and New Jersey, a large data base of state sites as well as data disks on work at EPA removal sites.

Clearly, there is great diversity among sites requiring hazardous waste clean up. To the extent possible a full array of sites have been included in the data bases. Data from a large number and variety of sites were studied. These include sites under the jurisdiction of Superfund, RCRA, Underground Storage Tank Program, Department of Energy, Department of Defense, State and Private.

Sites varied in size and geographic location. Activities which contributed to the contamination at these sites included landfills, surface impoundments, wellfields, leaking containers, asbestos hazards, radiological tailings, and waste oil.

Remedial action categories for sites included in the data base include institutional controls of monitoring, access restriction, and alternate water supplies; containment; in-situ treatment; water collection, treatment, and discharge; oil or sediment removal with low intensity treatment and site restoration; soil or sediment removal with high intensity treatment, ash disposal, and site restoration; and water collection and discharge to the existing facility.

These data bases may be expanded over time to remain current and to more comprehensively cover the broad scope of the nation's continuing cleanup activities. The data represent a valuable source for future research, and a rich foundation of actual remedial worksite experience form which a wide variety of analysis and projections can flow.